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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,132	06/20/2003	Anthony P. Shuber	EXT-055	4962

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EXAMINER	
AEDER, SEAN E	

ART UNIT	PAPER NUMBER
1642	

NOTIFICATION DATE	DELIVERY MODE
06/29/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/601,132	SHUBER, ANTHONY P.	
	Examiner	Art Unit	
	SEAN E. AEDER	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-8,11,14,19-21,24,28-30 and 35-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-8, 11, 14, 19-21, 24, 28-30, and 35-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

The Amendments and Remarks filed 4/24/09 in response to the Office Action of 10/24/08 are acknowledged and have been entered.

Claims 38-40 have been added by Applicant.

Claims 1, 4-8, 11, 14, 19-21, 24, 28-30, and 35-40 are pending.

Claims 1, 14, and 24 have been amended by Applicant.

Claims 1, 4-8, 11, 14, 19-21, 24, 28-30, and 35-40 are currently under examination.

Rejections Withdrawn

The rejection under 35 U.S.C. 112, first paragraph, is withdrawn.

The rejection of claims 1, 4, 7, 11, and 35 under 35 U.S.C. 103(a) as being unpatentable over Loktionov et al (Clinical Cancer Research, February 1998, 4(2): 337-342) in view of Hromadnikova et al (BMC Pregnancy and Childbirth, 5/28/02, 2(4):1-5) is withdrawn.

The rejection of claims 1, 4-8, 11, 14, 19-21, 24, 28-30, and 35-37 under 35 U.S.C. 103(a) as being unpatentable over Loktionov et al (Clinical Cancer Research, February 1998, 4(2): 337-342) in view of Hromadnikova et al (BMC Pregnancy and Childbirth, 5/28/02, 2(4):1-5) and further in view of Ahlquist et al (Gastroenterology, 2000, 119:1219-1227) is withdrawn.

Response to Arguments

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-8, 11, 14, 19-21, 24, 28-30, and 35-37 remain rejected and newly added claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lapidus et al (US 6,143,529; 11/7/00) in view of Hromadnikova et al (BMC Pregnancy and Childbirth, 5/28/02, 2(4):1-5) for the reasons found in the Office Action of 10/24/08 and for the reasons set-forth below.

Lapidus et al teaches a method for identifying a patient as a candidate for additional colorectal cancer testing comprising the steps of: determining a quantitative amount of patient genomic DNA in a stool sample comprising shed cells and shed cellular debris, wherein the quantitative amount is determined by using quantitative PCR to measure an amount of nucleic acid fragments amplified from shed cells and shed cell debris, wherein a higher amount of amplifiable genomic DNA in a stool sample, as compared to a healthy individual, is highly predictive of colorectal cancer because patients with adenoma in the colon slough more cells than healthy individuals (see Example 2 and lines 42-46, in particular). Lapidus et al further teaches a quantitative amount of DNA in a sample would be obtained by detecting amplifiable nucleic acids

less than 200bp in length (lines 43-47 of column 4, in particular). Lapidus et al further teaches that patients identified as possibly having colon cancer by one method would also be subjected to other methods of testing for colon cancer (lines 8-10 of column 4, in particular). Such other methods comprise performing other diagnostic methods on the stool sample, LOH assay, detection of ras mutation, and colonoscopy (column 4, in particular).

Lapidus et al does not specifically teach a method wherein amounts of genomic DNA are expressed as "genome equivalents". However, this deficiency is made up in the teachings of Hromadnikova et al.

The teachings of Hromadnikova et al are discussed above.

One of ordinary skill in the art at the time the invention was made would have been motivated to perform the methods of Lapidus et al by expressing amounts of DNA in terms of genomic equivalents because expressing amounts of DNA in terms of genomic equivalents effectively normalizes data between multiple samples and assays. Further, one would have been motivated to perform said methods by detecting any amplifiable DNA, including amplified patient DNA having lengths of 200bp or less, wherein a patient is identified as a candidate for additional colorectal cancer testing if the amount of amplified patient genomic DNA having length of 200 bp or less is above a predetermined threshold level and wherein amounts of DNA are expressed as "genome equivalents" because Lapidus et al teaches a high amount of amplifiable genomic DNA in a stool sample, as compared to a healthy individual, is highly predictive of colorectal cancer because patients with adenoma in the colon slough more cells than healthy

individuals (see Example 2 and lines 42-46, in particular). One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for performing the methods of Lapidus et al by expressing amounts of DNA in terms of genomic equivalents and detecting amplified patient DNA having lengths of 200bp or less because Hromadnikova et al teaches how to determine genome equivalents and because Lapidus et al teaches a high amount of amplifiable genomic DNA in a stool sample, as compared to a healthy individual, is highly predictive of colorectal cancer because patients with adenoma in the colon slough more cells than healthy individuals (see Example 2 and lines 42-46, in particular). Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, absent unexpected results.

When performing the combined method, patients with an amount of genome equivalents above 10, 500, 650, and 1000 genome equivalents would be identified as a candidate for additional testing when an amount of genome equivalents at or below 10, 500, 650, and 1000 genome equivalents is detected in a normal patient sample. Further, such an "identifying" step is not an active method step and not considered a limitation to the claims.

In the Reply of 4/24/09, Applicant argues that none of the cited references teach or suggest threshold amounts of at least 10 genome equivalents for determining (i) whether a patient is a candidate for additional cancer testing, (ii) whether the patient has abnormal proliferating cancer cells, or (iii) whether the patient has colorectal cancer or precancer.

The amendments to the claims and the argument found in the Reply of 4/24/09 have been carefully considered, but are not deemed persuasive. Lapidus et al teaches 200 pg as a "positive" result (see Example 2, in particular). *As evidenced by* Hu et al (BBRC, 2004, 313: 1058-1064), one human genomic equivalent would readily be found by the combined teachings to be 3 pg (see left column of 1059, in particular). Therefore, the 200 pg “positive” result of Lapidus et al is at least 10 genome equivalents for determining (i) whether a patient is a candidate for additional cancer testing, (ii) whether the patient has abnormal proliferating cancer cells, or (iii) whether the patient has colorectal cancer or precancer. Further, 500, 650, and 1000 genomic equivalents would be “positive” and indicate a patient is a candidate for additional cancer testing, that the patient has abnormal proliferating cancer cells, and that the patient has colorectal cancer or precancer.

Summary

No claim is allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN E. AEDER whose telephone number is (571)272-8787. The examiner can normally be reached on M-F: 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms can be reached on 571-272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sean E Aeder/

Primary Examiner, Art Unit 1642